

(12) STANDARD PATENT APPLICATION (11) Application No. **AU 2003204418 A1**
(19) AUSTRALIAN PATENT OFFICE

(54) Title
 Building member and cladding system

(51)⁷ International Patent Classification(s)
 E04B 002/72 E04B 002/28

(21) Application No: **2003204418** (22) Date of Filing: **2003.05.28**

(30) Priority Data

(31) Number (32) Date (33) Country
 519190 2002.05.28 NZ

(43) Publication Date: **2003.12.18**

(43) Publication Journal Date: **2003.12.18**

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ABSTRACT

A building member includes a substantially elongate H-shaped cross section having a bar portion having flanges forming first and second recesses. In use the first recess of the elongate member is adapted to be fixable to a building. The second recess is adapted and
5 constructed to allow drainage to exit therefrom.

Also in a second aspect the invention consists in a framing system for cladding, comprising intersecting framing adapted to be fixable to a building surface and to cladding. The framing being made up of at least substantially elongate H-shaped cross sectional members. The horizontal framing members are constructed and adapted to provide drainage away from the
10 building.

A method of cladding a building surface with a system comprising intersecting framing adapted to be fixable to a building surface and to cladding, the framing being made up of substantially elongate H-shaped cross sectional members which are constructed and adapted to provide drainage away from the building. The method includes:

- 15 - attaching horizontal framing members to the building surface;
- attaching vertical framing members between the horizontal framing members.

AUSTRALIA

Patents Act 1990

COMPLETE SPECIFICATION

Invention Title:

BUILDING MEMBER AND CLADDING SYSTEM

The following statement is a full description of this invention, including the best method of performing it known to me:

BUILDING MEMBER AND CLADDING SYSTEM

This invention relates to a building member and cladding system. The invention is directed particularly, but not solely, towards a recladding system for residential, industrial and commercial building surfaces.

BACKGROUND OF THE INVENTION

Existing recladding systems are designed to both improve the aesthetics and weather tightness of insitu buildings. Recladding can fall into two main categories based on the seal required. The first is a fully sealed system and the second system is a vented open joint sealing system.

The fully sealed systems are difficult to maintain having problems with the integrity of the structure under a determined and aggressive environment. Sun, wind, rain, seismic forces and chemical attack etc make the fully sealed system difficult to economically achieve. Open vented systems provide a better solution by not opposing the elements but instead allows for them by managing and controlling.

Existing open vented joint systems rely on a vertical channels between panels which function essentially like drain pipes with limited horizontal drainage emptying into the vertical joints between the new cladding. Existing sealed cladding systems therefore retain moisture for longer periods allowing water/moisture to build up, reducing their product life and weather resistance and causing flooding. Existing open joint systems can be prone to water ingress in extreme conditions.

It is the object of the present invention to provide an improved building member and cladding system which will obviate or minimise the aforementioned problems in a simple yet effective manner and/or which will at least provide the public with a useful choice.

STATEMENT OF INVENTION

Accordingly in a first aspect the invention consists in a building member, the member including a substantially elongate H-shaped cross section having a bar portion having flanges

forming first and second recesses, in use the first recess is adapted to be fixable to a building wherein the second recess is adapted and constructed to allow drainage to exit therefrom.

Preferably the first recess is adapted to be a dry area.

Preferably the building member is one piece.

- 5 Alternatively the building member is fabricated from at least two pieces.

Preferably the second recess is deeper than the first recess wherein the first recess in use is constructed and adapted to allow fixing means therethrough to an existing building surface.

Preferably the fixing means is joined to a bracket which is fixable to the building

- 10 Preferably the second recess is adapted and constructed to be fixable to at least one cladding member.

Preferably the recesses include flanges being angled with respect to the bar portion, wherein the flanges having end portions substantially parallel to the bar portion.

Preferably the second recess flanges are angled with respect to the bar portion, to provide in use the drainage slope whereby fluid is directed away from the building surface.

- 15 Preferably the second recess has an upper flange and a lower flange wherein the upper flange has at least one drainage aperture.

Preferably the upper and lower flanges have a sloping portion.

- 20 Accordingly in a second aspect the invention consists in a framing system for cladding comprising intersecting framing adapted to be fixable to a building surface and to cladding, the framing including substantially elongate H-shaped cross sectional members, the members including at least one horizontal framing member wherein the horizontal framing members are constructed and adapted to provide drainage away from the building.

- 25 Preferably the elongate H-shaped cross sectional member having a bar portion wherein in use when the elongate members are affixed to the building surface the bar portion is substantially parallel thereto.

Preferably the elongate member forms a first recess and a second recess, the second recess being deeper than the first recess wherein the first recess in use is constructed and adapted to allow fixing means therethrough to an existing building surface.

Preferably the fixing means is joined to a bracket which is fixable to the building surface

- 5 Preferably the second recess is adapted and constructed to be fixable to at least one cladding member.

Preferably the first recess is adapted to be a dry area.

Preferably the recesses include flanges being angled with respect to the bar portion, wherein the flanges having end portions substantially parallel to the bar portion.

- 10 Preferably the second recess flanges are angled with respect to the bar portion, to provide in use a drainage slope whereby fluid is directed away from the building surface.

Preferably the horizontal members have at least one aperture to allow fluid to exit the framing system.

- 15 Preferably the framing is attached to a wall of the building wherein the framing includes continuous horizontal elongate members and vertical members therebetween.

Preferably the second recess has an upper flange and a lower flange wherein the upper flange has at least one drainage aperture.

Preferably the upper and lower flanges have a sloping portion.

- 20 Accordingly in a third aspect the invention consists in a method of re-cladding a building surface with a system comprising intersecting framing adapted to be fixable to a building surface and to cladding, the framing including substantially elongate H-shaped cross sectional members, wherein at least the horizontal framing members are constructed and adapted to provide drainage away from the building, the method including the following steps are carried out:

- 25 - attaching horizontal framing members to the building surface;
- attaching the vertical framing members between the horizontal members

The method as disclosed followed by :

- attaching cladding to the framing members to create a cavity therebetween.

DRAWING DESCRIPTION

Preferred forms of the invention will now be described with reference to the accompanying
5 drawings.

Figure 1 is a perspective view of an intersecting open vented panel joint of the invention.

Figure 2 is a cross-sectional view of the horizontal drained joint detail for direct fixing.

Figure 3 is a cross-sectional view of a horizontal joint with spaced fixing.

Figure 4 is a front view of an existing drainage system for cladding.

10 Figure 5 is a front end view of the drainage system of the invention.

Figure 6 is a cross sectional plan view of direct fixing of the cladding system to an existing building using riveting.

Figure 7 is a cross sectional plan view of a corner detail.

Figure 8 is a cross sectional plan view of a bracket fixing system using screw fixing.

15 Figure 9 is a cross sectional view of an up stand wall using a direct fixing method.

Figure 10 is a close up view of a part of the up stand wall of figure 9.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

As shown in figures 1, 2 and 3 the cladding system is made up of a frame having in use
horizontal elongate members 1 and vertical elongate members 2 which can have cladding
20 panels 3 fixable on one side of the framing system and optionally bracket(s) 4 enabling the
framing system to be spaced from a wall or ceiling of a building 5.

As shown in figures 2 and 3 there is shown the relationship of the frame with respect to the wall in two different aspects of the invention. Figure 2 shows the framing being directly

fixed to the wall 5 whereas figure 3 shows the framing spaced by the bracket 4 from the building 5 having a cladding or outer surface 7.

The framing is generally put in whereby the horizontal members 1 are continuous across the face of the building with the vertical members 2 put in between.

- 5 The cladding 3 is attachable to the horizontal member 1 by fixing means 8. The horizontal member(s) in turn or before the cladding is attached, is attached by fixing means 9 to the building 5.

Figure 3 shows the bracket 4 with attaching means 10 and 11 affixing to the building and a horizontal member 1 respectively.

- 10 The horizontal member(s) and vertical member(s) 2 are substantially in the form of a substantially elongate H-shaped cross sectional member having a bar portion 12 which in use is substantially parallel to the face of the surface 7 that the framing is being attached to. The horizontal and vertical members can be fabricated as one piece or several pieces. Using several pieces can be useful for improving relative movement with regard to seismic forces.
- 15 The horizontal and vertical members therefore have a cross sectional shape that forms a first recess 13 which in use abuts the building 5 and a second recess 14 which faces outwards. The first recess is also adapted to be a dry area so that the fixings are not dampened nor is moisture/fluid allowed to pass therethrough. The first recess area is not connected to the second recess area with any fixing therethrough being sealingly fixed. The second recess 14
- 20 is designed to provide a drainage path from inside the cavity that is formed between the framing and new cladding and existing building surface 7. The vertical and horizontal members have flanges 15 which form the first recess 13 and flanges 17 which form the second recess 14. The flanges 17 have end portions 18 which are substantially parallel to the bar portion 12. The first recess 13 has end portions 16 which are also substantially parallel
- 25 to the bar portion 12.

The framing members 1 and 2 form a pressure equalised cavity 19 whereby in conjunction with the second recess 14 allow drainage of condensation and fluid, out of cavity 19. At least for the horizontal members the second recess 14 of the first member 1 has at least one aperture/hole 21 therein to enable the condensation or fluid or water within pressure cavity

19 above to exit therefrom and out through the second recess 14. The apertures 21 can be minimally located on an upper flange 22 of the horizontal member. The upper flanges 22 can be sloped to a bench surface which has the aperture(s) therein. The lower flange 23 can be simply angled towards the front of the cladding structure ie facing the weather, to enable the fluid to be directed away from the building. Other variations are possible as long as there is a slope and apertures especially on the upper flange.

Figure 3 shows a further cavity 20 that is formed parallel to the first cavity 19.

As shown in figure 4 and 5 there are shown the improved method of drainage of both the cavity between the cladding panel and an existing building and along the various channels between the panels.

Figure 4 represents the current open vented rainwater system of the prior art where all of the drainage travels down the vertical gaps/paths between panels 3. With current seal joint systems the vertical drainage paths effectively form 'down pipes' and can create a flooding and leakage situation. The water on the outside of the panel merely flows over the outside with any water getting in between being merely directed to the vertical drainage paths whereas shown in figure 5 of the invention as disclosed, the system effectively drains water very quickly from behind the panel through horizontal and vertical members 1 and 2.

The invention has drainage at every vertical and horizontal joint thereby managing and controlling the drainage by quickly deflecting water away from the principle structure or building surface. Other products such as different panels, or brands can be used with this system. The size of the members and or joints and shape of parts of the H cross-section can be varied to suit particular site conditions. Coatings such as galvanizing or stainless steel for example can be used.

The horizontal member supports the cladding, catches any water ingress around a sheet and drains it over the face of the sheet below and connects back to the building surface structure. This enables every panel to be drained and is not sensitive if one or two drain holes 21 are blocked.

There is second a system which is better suited to low rise buildings having lower drainage expectations - e.g. can have eaves. In this system both the vertical and horizontal elongate

members 1 and 2 can have the same cross section. For example this can be at least the vertical member 2. The system as shown in figures 1, 2 and 3 is better suited to high rise buildings or where the drainage surface area is much greater and the chances of leakage and the need to get rid of a lot of water is much greater. However both systems are
5 interchangeable.

The first system of figures 1 to 3 is made up of first horizontal members 1 having angled flange portions which are numbered 17 with the vertical member 2 not having the angled flange portions. The flange portions 17 in vertical member 1 are essentially and substantially contiguous with the flanges 15 of the first recess. The vertical member in the system though
10 still has the flanges 16 and 18 respectively.

Figure 6 shows the direct fixing method for the vertical member 30 (previously labelled 2). The drawing shows a fixing means which can be rivets or they can be self-driven screws or any fastening system able to be effectively attached to provide the correct seal and attachment and support. As shown the vertical member 30 is shown being directly fixed
15 through the central bar portion 31.

Figure 7 again shows the system instead with a bracket 4 spacing the vertical member 30 from the building 5 having a cladding or outer surface 7. At the corner there is also shown a corner bracket 4 which is attached to the outer flange 18 of the vertical member and also attached to the cladding on both corner faces.

20 Figure 8 shows another alternative to the system of figure 6 whereby the vertical member is spaced by the bracket.

Figures 9 and 10 show the use of the member also being used in a horizontal situation. This member is labelled 40 and can be directly fixed to the cladding 42 and 43 of a parapet wall 41 after removing any existing flashing 44. Also shown is a bracket 4 which can be also
25 used to support the vertical member 30. The overclad frame having the horizontal members are not shown attached to the cladding.

Other apertures, slits or perforations can be included with/in any of the elongate framing members to enhance circulation and/or drainage.

To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the descriptions herein purely illustrative and are not intended to be in any
5 sense limiting.

Throughout the description and claims of this specification the word "comprise" and variations of that word, such as "comprises" and "comprising", are not intended to exclude other additives, components, integers or steps.

The building member and cladding system has the following advantages:

- 10 1. Simple installation.
2. Modest production costs.
3. Effective drainage of every sheet or panel.
4. No build up of water behind the cladding system.
5. No flooding or overflow problems
- 15 6. Effective cladding system able to be adapted to any situation.
7. Effective vented cavity which allows rapid drying.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A building member, the member including a substantially elongate H-shaped cross section having a bar portion having flanges forming first and second recesses, in use the first recess is adapted to be fixable to a building wherein the second recess is adapted and constructed to allow drainage to exit therefrom.
5
2. A building member as claimed in claim 1 wherein the first recess is adapted to be a dry area.
3. A building member as claimed in claim 2 wherein the building member is one piece.
4. A building member as claimed in claim 2 wherein the building member is fabricated from at least two pieces.
10
5. A building member as claimed in claim 3 or claim 4 wherein the second recess is deeper than the first recess wherein the first recess in use is constructed and adapted to allow fixing means therethrough to an existing building surface.
6. A building member as claimed in claim 5 wherein the fixing means is joined to a bracket which is fixable to the building
15
7. A building member as claimed in claim 6 wherein the second recess is adapted and constructed to be fixable to at least one cladding member.
8. A building member as claimed in claim 7 wherein the recesses include flanges being angled with respect to the bar portion, wherein the flanges having end portions substantially parallel to the bar portion.
20
9. A building member as claimed in claim 8 wherein the second recess flanges are angled with respect to the bar portion, to provide in use the drainage slope whereby fluid is directed away from the building surface.
10. A building member as claimed in claim 9 wherein the second recess has an upper flange and a lower flange wherein the upper flange has at least one drainage aperture.
25

11. A building member as claimed in claim 10 wherein the upper and lower flanges have a sloping portion.
12. A framing system for cladding comprising intersecting framing adapted to be fixable to a building surface and to cladding, the framing including substantially elongate H-shaped cross sectional members, the members including at least one horizontal framing member wherein the horizontal framing members are constructed and adapted to provide drainage away from the building.
13. A framing system as claimed in claim 12 wherein the elongate H-shaped cross sectional member having a bar portion wherein in use when the elongate members are affixed to the building surface the bar portion is substantially parallel thereto.
14. A framing system as claimed in claim 13 wherein the elongate member forms a first recess and a second recess, the second recess being deeper than the first recess wherein the first recess in use is constructed and adapted to allow fixing means therethrough to an existing building surface.
15. A framing system as claimed in claim 14 wherein the fixing means is joined to a bracket which is fixable to the building surface
16. A framing system as claimed in claim 15 wherein the second recess is adapted and constructed to be fixable to at least one cladding member.
17. A framing system as claimed in claim 16 wherein the first recess is adapted to be a dry area.
18. A framing system as claimed in claim 17 wherein the recesses include flanges being angled with respect to the bar portion, wherein the flanges having end portions substantially parallel to the bar portion.
19. A framing system as claimed in claim 18 wherein the second recess flanges are angled with respect to the bar portion, to provide in use a drainage slope whereby fluid is directed away from the building surface.

- 300305 ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

- 5

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PIPERS

ABSTRACT

A building member includes a substantially elongate H-shaped cross section having a bar portion having flanges forming first and second recesses. In use the first recess of the elongate member is adapted to be fixable to a building. The second recess is adapted and
5 constructed to allow drainage to exit therefrom.

Also in a second aspect the invention consists in a framing system for cladding, comprising intersecting framing adapted to be fixable to a building surface and to cladding. The framing being made up of at least substantially elongate H-shaped cross sectional members. The horizontal framing members are constructed and adapted to provide drainage away from the
10 building.

A method of cladding a building surface with a system comprising intersecting framing adapted to be fixable to a building surface and to cladding, the framing being made up of substantially elongate H-shaped cross sectional members which are constructed and adapted to provide drainage away from the building. The method includes:

- 15 - attaching horizontal framing members to the building surface;
- attaching vertical framing members between the horizontal framing members.

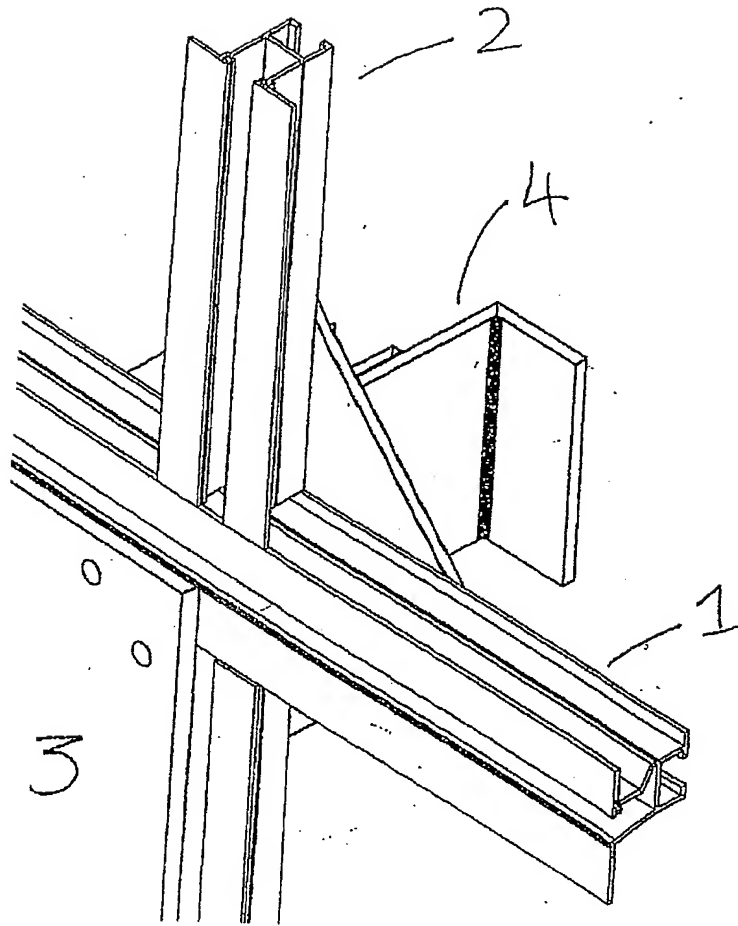


Figure 1

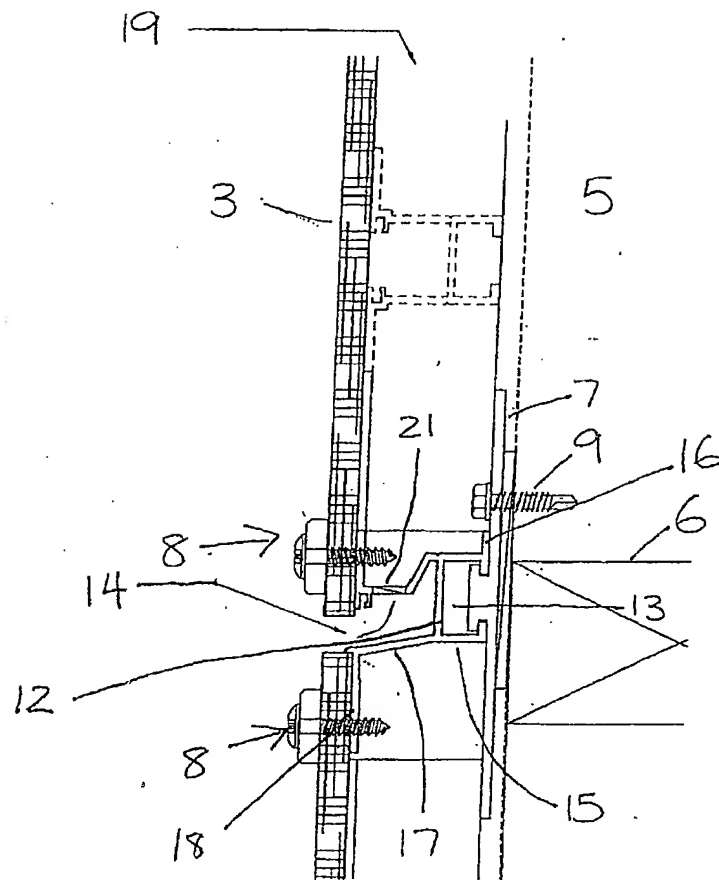


Figure 2

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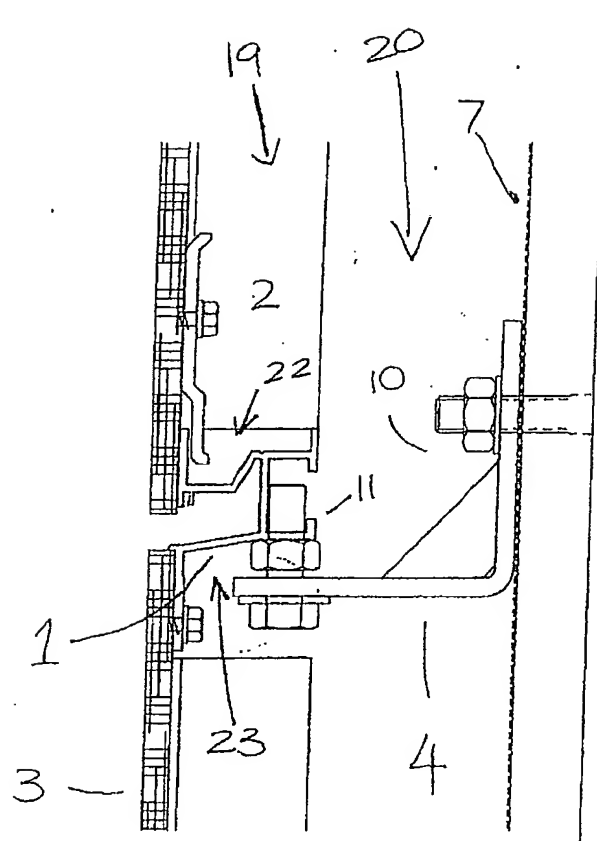


Figure 3

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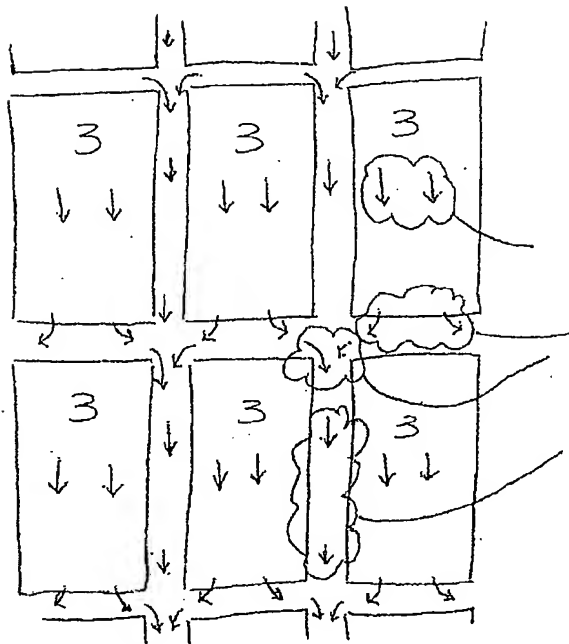


Figure 4

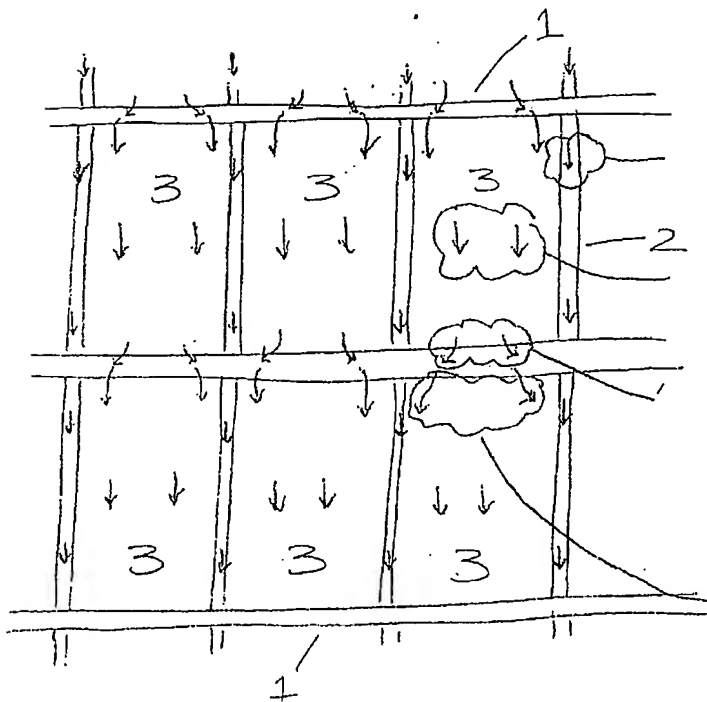


Figure 5

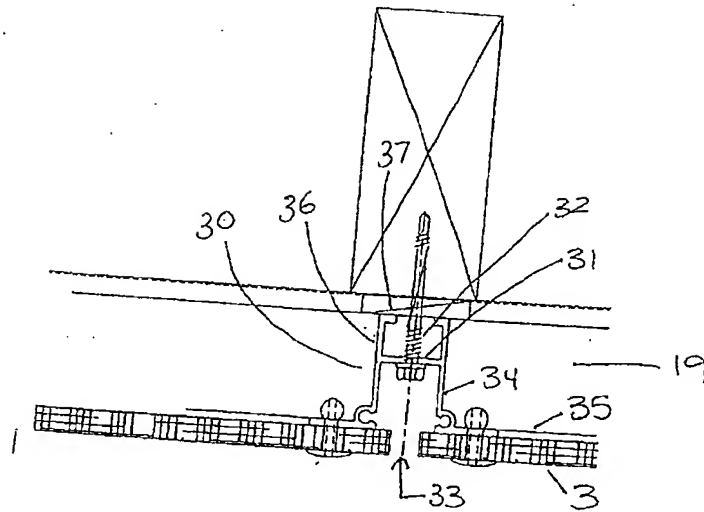


Figure 6

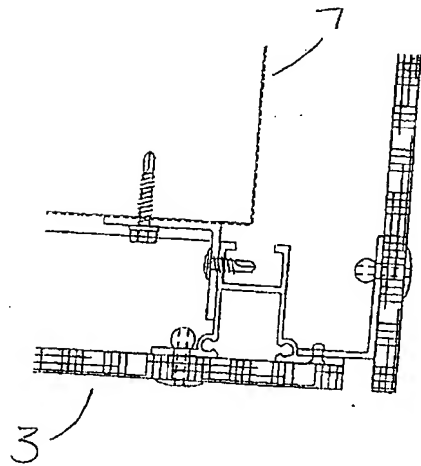


Figure 7

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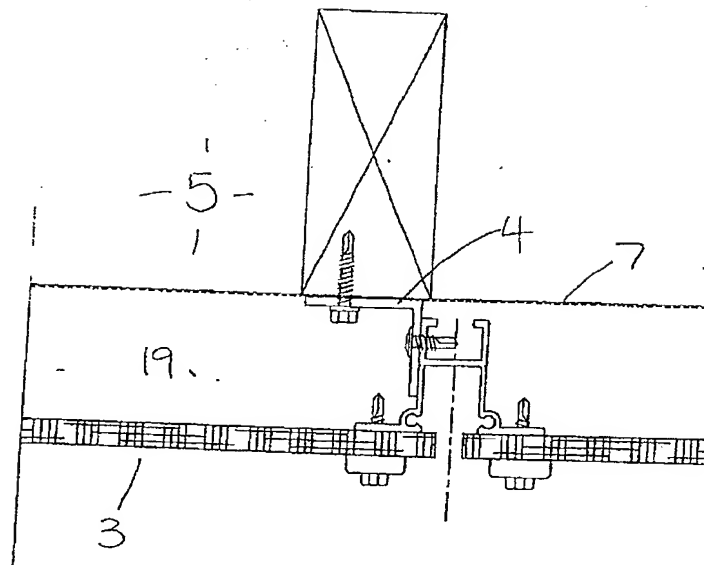


Figure 8

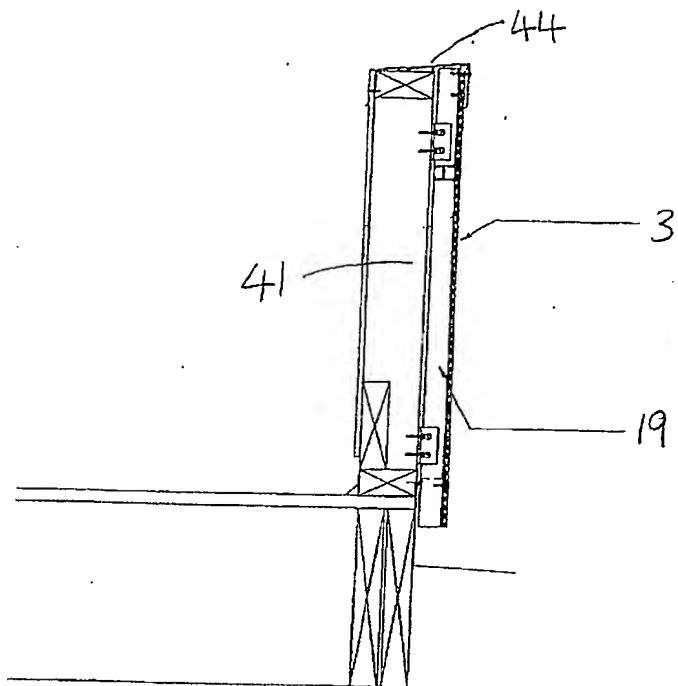


Figure 9

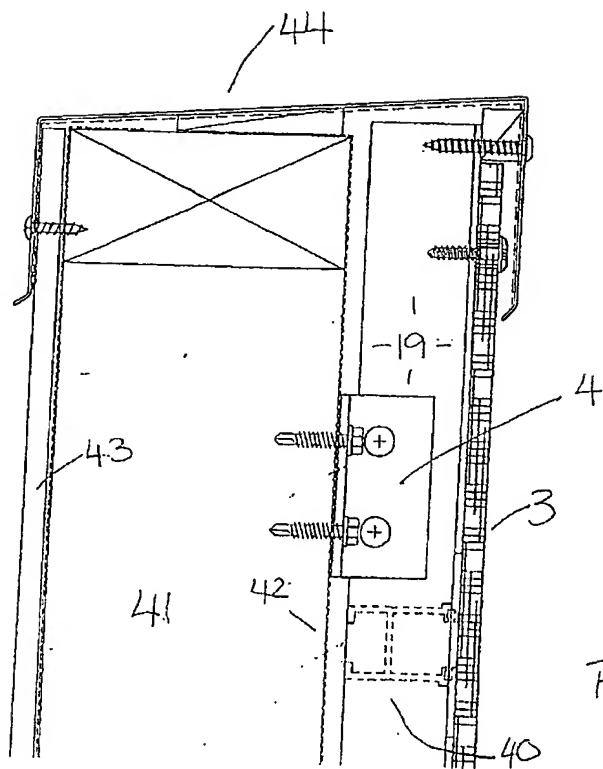


Figure 10